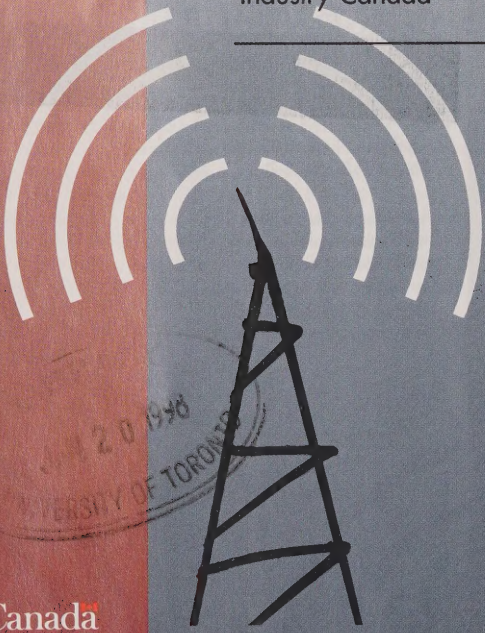
Radiocommunication Towers, Environmental Assessment and Safety Code 6

Frequently Asked Questions

compiled by Industry Canada



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Why should I read this brochure?

This brochure answers the most common questions about radiocommunication facilities (antennas and towers). This side of the brochure answers questions about Industry Canada's procedures for tower location, environmental concerns and community consultation.

Industry Canada is responsible for authorizing devices that use radiofrequencies (RF) to provide many different kinds of telecommunications services. Before a radio station is installed, consideration is given to how an antenna and its supporting structure may affect the surrounding area. Consideration is also given to effects on: the environment, other radio users, and local land use.

Industry Canada also requires that radio facilities be operated in accordance with the guidelines set by Health Canada to protect people who live or work near a radiocommunication facility. Please turn to the other side of the brochure for answers to health and safety questions.

Why are towers necessary?

A radio antenna and a tower are the two most important parts of a radiocommunication system. The antenna is needed to send and receive signals for the radio station. The tower raises the antenna above obstructions such as trees and buildings so that it can send and receive these signals clearly.

Each radio station and its antenna system (including the tower) provide radio coverage to a specific geographic area, often called a cell. The antenna system must be carefully located to ensure that it provides a good signal over the whole cell area, without interfering with other stations.

In areas where there are many cells, the antennas do not need to be very high. Where the cells are larger, the antennas must be higher above the ground to provide good radio coverage for the whole area.

If the station is part of a radio telephone network, the number of stations needed also depends on how many people are using the network. If the number of stations is too small, people may not be able to connect to the network, or the quality of service may decrease.

As demand increases for mobile phones and new telecommunication services, additional towers are required to maintain or improve the quality of service to the public.

Why was this location chosen and why can't they use an existing tower?

Industry Canada encourages radio station proponents to locate a proposed antenna on an already existing structure whenever possible. However, technical and other considerations may make it impossible for two stations to share the same structure. For example, the size of the area to be covered, or the specific technical requirements for the proposed station, may make it impossible to use an existing structure.

Should I be concerned about the tower falling and damaging my property?

No – this should not be a concern. Towers are designed and built using good engineering practices. Special requirements for a specific site are also taken into consideration when designing the tower.

Why must the tower be painted and have lights?

The height of a tower may pose a hazard for aircraft. Paint and lighting requirements are set by Transport Canada to ensure aeronautical safety.

How does Industry Canada deal with environmental concerns related to radiocommunication installations?

The *Canadian Environmental Assessment Act* (CEAA) requires Industry Canada to consider environmental concerns when reviewing licence applications. The first step is to determine whether an environmental assessment is required.

Most radiocommunication antennas and their supporting structures have no significant effect on the environment. As a result, the CEAA excludes them from environmental assessment (CEAA: *Exclusion List Regulations*).

What should I do if I am concerned about a proposed tower in my community?

Industry Canada recognizes that the local community may have concerns about the location of a radiocommunication tower. As a result, the Department requires proponents of significant antenna structures to consult with municipal land-use authorities. If you have concerns about a proposed tower in your community, you may wish to make your views known to your local municipal officials. Local concerns can be taken into consideration during the consultation process with the proponent of the radiocommunication facility.

What does Industry Canada expect from the consultation process?

The consultation process ensures that local municipal land-use authorities have the opportunity to influence the location of radiocommunication antenna structures. Industry Canada expects that all involved parties will examine the proposal, consider each other's concerns and attempt to arrive at alternative solutions that do not unduly restrict the antenna structure. The consultation process attempts to resolve concerns at the local level.

Must towers comply with local zoning by-laws?

Industry Canada encourages all proponents of radiocommunication facilities to comply with local zoning by-laws where they exist. However, local by-laws cannot prevent a radiocommunication facility from being built as Industry Canada has the final authority over radiocommunication towers and facilities under the *Radiocommunication Act*.

Will my radio and TV reception be affected by the proposed tower?

Television or radio reception is not usually affected by a new radiocommunication facility. If you do experience interference, we suggest that you contact the operator of the station. Industry Canada encourages operators to work with their neighbours to resolve interference problems as quickly as possible.

What is the role of Industry Canada in evaluating exposure to radiofrequency fields?

Industry Canada licenses and approves equipment and facilities that emit radiofrequency fields. Since the area of health is not in our mandate, we rely on Health Canada for advice on safe levels of exposure to radiofrequency fields.

Industry Canada requires that all radio stations be operated within the guidelines established by Health Canada's Radiation Protection Bureau in its publication, *Limits of Exposure to Radiofrequency Fields at Frequencies from 10 kHz - 300 GHz*. This document is also known as Safety Code 6.

Health and safety questions are discussed on the reverse side of this brochure.

Industry Canada Reference and Contacts:

Reference:

Client Procedures Circular, CPC 2-0-03, *Environmental Process, Radiofrequency Fields and Land-Use Consultation*

Contacts:

If you want more information: Consult your nearest Industry Canada Spectrum Management office.

You may also obtain additional information on the internet at http://strategis.ic.gc.ca.

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How does Safety Code 6 compare with the standards in other countries?

The exposure limits set by Safety Code 6 are similar to other national and international standards. All countries use the same biomedical data and the same general approach to setting safety guidelines. Differences in interpreting the biological effects under certain exposure conditions sometimes result in small differences in the exposure limits that are recommended. These minor differences will not affect a person's health. Canada's exposure limits are among the safest guidelines in the world.

Why do we need Safety Code 6?

Safety Code 6 was developed to protect the health and safety of Canadians. Studies have shown that exposure to *excessive* levels of radiofrequency energy over prolonged periods of time may cause adverse health effects. What kind of health effects, and how serious they are, depends on a number of factors. These factors include the strength of the field, how often a person is exposed, the length of each exposure, the number of cycles per second of the field, the distance from the source, and the orientation of the radiofrequency field. Safety Code 6 helps to limit the amount of radiofrequency energy people are exposed to at work and at home.

What is the legal status of Safety Code 6?

Safety Code 6 is a guideline rather than a law. However, it is referenced in the regulations written under the Canada Labour Code. This means that federal government departments, crown corporations, and other organizations that come under the control of these regulations, must follow the safety procedures and installation guidelines given in Safety Code 6 (unless they are exempted by regulation). Industry Canada also requires operators of radiocommunication and broadcast facilities to follow Safety Code 6. In addition, Canadian provinces and territories have generally adopted the Safety Code 6 exposure recommendations.

If Safety Code 6 is important to protect the health of Canadians, why not make it a law that everyone must follow?

Scientific studies on the biological effects of radiofrequency fields are ongoing. Since Safety Code 6 is a guideline, it can be changed quickly when new and convincing scientific evidence justifies a change. It would take much longer to amend a law.

Health Canada Reference and Contacts:

Reference:

Safety Code 6, *Limits of Exposure to Radiofrequency Fields at Frequencies from 10 kHz - 300 GHz* (catalogue no. H46-2/90-160) is available in both English and French at Canada Communication Group – Publishing, Ottawa, Ontario K1A 0S9. Tel. (613) 956-4802.

Contacts:

Questions concerning the interpretation of Safety Code 6 should be directed to:

Non-Ionizing Radiation Section
Radiation Protection Bureau
775 Brookfield Road, Postal Locator 6301B
Ottawa, Ontario K1A 1C1

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Why should I read this brochure?

This brochure answers the most common questions about radiocommunication facilities (antennas and towers). This side of the brochure answers the most common questions about health risks from exposure to the radiofrequency fields produced by radiocommunication transmitters. We hope it provides clear information about a complex and often misunderstood topic.

For information about Industry Canada procedures for the location of a tower, environmental concerns or municipal consultation, please turn to the other side of the brochure.

What are the sources of radiofrequency fields?

Radiofrequency fields are a part of everyday life. They are produced by sources such as radio and television broadcasting, mobile radiocommunication transmitting facilities, and cellular telephones. They are also produced in our homes by electronic devices such as television sets and computers.

What are Canada's safety guidelines for radiofrequency fields?

Health Canada's Radiation Protection Bureau has established safety guidelines for exposure to radiofrequency fields. These safety guidelines are outlined in the publication, *Limits of Exposure to Radiofrequency Fields at Frequencies from 10 kHz - 300 GHz*, also known as Safety Code 6.

Safety Code 6 sets the limits for safe exposure to radiofrequency fields at home or at work. The Code also outlines safety requirements for the installation and use of devices that emit radiofrequency fields. (Note: The exposure limits in this code are not intended to apply to people who are deliberately exposed to RF fields for medical treatment under the direction of a physician.)

I live in a house that is located near a tower with all kinds of antennas on it. Should I be concerned?

Biomedical studies in Canada and other countries indicate there is no scientific or medical evidence that a person will experience adverse health effects from exposure to radiofrequency fields, provided that exposure is within the guidelines set out in Safety Code 6.

Through its procedures, Industry Canada requires that all operators of radio and television broadcast stations, cellular, land mobile, amateur radio and other radiofrequency emitters, ensure that the radiofrequency fields produced by their installations do not exceed the maximum levels contained in Health Canada's Safety Code 6. Health Canada recently measured the level of radiofrequency field exposure around a number of cellular transmitting facilities. They found that the levels are well below the limits specified in Safety Code 6.

What are Safety Code 6 exposure limits based on?

Safety Code 6 sets safe exposure limits for individuals working on sources of radiofrequency fields (8 hours a day) and for the general public who could be exposed for 24 hours a day. The limits were established from the results of experiments on biological organisms. These experiments identified the lowest level of exposure (called a threshold) that could produce potentially harmful effects. The Safety Code 6 limit for people who are exposed to radiofrequency fields in their work environment (8 hours a day) was set by dividing the threshold amount of exposure by 10. For people who could be exposed for 24 hours a day (the general public) the threshold amount was divided by 50.

- **Safety Code 6 Limit** for people exposed 8 hours per day equals **one-tenth** of the lowest level of exposure that could cause harm

- **Safety Code 6 Limit** for people exposed 24 hours per day equals **one-fiftieth** of the lowest level of exposure that could cause harm

Health Canada Santé Canada

Safety of Exposure to Radiofrequency Fields

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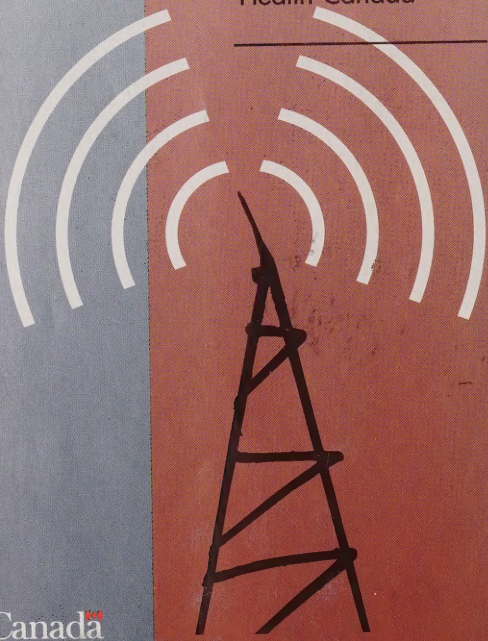

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